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10/661,536	09/15/2003	Kazuhiro Yoshida	2003-1243A	8038

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EXAMINER

MOORE, MARGARET G

ART UNIT PAPER NUMBER

1712

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/661,536

Applicant(s)

YOSHIDA ET AL.

Examiner

Margaret G. Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 to 31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15 to 19 is/are allowed.
- 6) ☒ Claim(s) 1 to 11, 14, 20 to 29 is/are rejected.
- 7) ☒ Claim(s) 12, 13, 30 and 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

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1. This action is in response to applicants' letter dated 11/03/04, requesting that a supplemental office action be issued addressing the claims as amended by the preliminary amendment dated 9/15/03. This office action is a supplemental non-final rejection and the date for responding to the office action has been restarted. The Examiner has not attached an additional PTO-892 form since all references cited in this action were cited in the previous office action.

2. Claims 1 to 6 and 20 to 25 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the actual process steps required in the production of the silsesquioxane (2). The step "using" fails to adequately define a specific process step. Since one cannot determine what steps are required to prepare silsesquioxane (2) the metes and bounds of this claim are unclear.

3. Claims 23 to 25 are objected to because of the following informalities: Reference to Formula (1) on line 1 lacks the appropriate right side parenthesis ")". Appropriate correction is required.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 1 to 4, 7 to 10, 14 and 26 to 28 are rejected under 35 U.S.C. 102(a) as being anticipated by Lichtenhan et al., Patent Application Publication US 2004/0068075, herein '075.

'075 teaches polyhedral oligomeric silsesquioxanes. Note for instance Figure 5 which shows a compound meeting Formula (2) wherein each Y is a group of Formula (3) having an alkenyl Z group and methyl R<sup>1</sup> and R<sup>2</sup> groups. See also paragraph 41. R is defined on column 2, paragraph 10. Since R is defined as a cyclic or linear aliphatic or aromatic, the skilled artisan would have immediately envisioned the simplest groups in the aliphatic series, such as methyl or ethyl, as well as the simplest aromatic group, phenyl, thereby anticipating the limitations of claims 7 to 10, as well as claim 14. The subject matter in claims 26 to 28 is comparable to that of instant claim 14.

With regards to claim 1, note that column 2, paragraph 7, teaches that these silsesquioxanes can be prepared by reacting a siloxide having Si-OA group, wherein F is hydrogen, alkaline or alkaline earth metals. Thus '075 teaches that the silsesquioxane in, for instance, Figure 5 can be prepared from a comparable starting material having OM groups that correspond to the silicon compound (1). In this manner claim 1 is also anticipated by the prior art. The rationale regarding the definition of R noted in the paragraph supra applies to claims 2 to 4 as well.

7. Claims 5, 6, 11, 20 to 25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over '075.

'075 specifically teaches alkaline metals which include sodium. One having ordinary skill in the art would have found the selection of such a metal obvious and within routine experimentation, particularly in view of the limited number of metals found in this group. In this manner the limitations of claims 5 and 6 are rendered obvious. The subject matter in claims 20 to 22 corresponds to the subject matter in claim 5 and the subject matter in claims 23 to 25 corresponds to the subject matter in claim 6.

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Regarding claims 11 and 29, note that paragraph 10 teaches that the aliphatic R groups can contain a reactive functionality such as halides. In view of the limited number of members in the halide group, one having ordinary skill in the art would have found the selection of an aliphatic group having a fluorine functional group to have been an obvious selection.

8. Claims 7 to 10, 14 and 26 to 28 are rejected under 35 U.S.C. 102(a) as being anticipated by Lichtenhan et al., Patent Application Publication US 2003/0055193, herein '193.

'193 teaches a process for the functionalization of polyhedral oligomeric silsesquioxanes. Note the first formula after the reaction scheme on paragraph 35. This includes three  $-\text{SiR}_2\text{RY}$  groups. Such a compound corresponds to the claimed silsesquioxane derivative having three Y groups of Formula (3). Note the various functional Y groups found in paragraph 40 which anticipate the definition of Z in claims 7 and 14. The definition of R is found in paragraph 10. The Examiner relies on the rationale noted in paragraph 6, supra, concerning the anticipation of the specific R groups in instant claims 7 to 10. In addition, note that the working examples show R groups that meet the requirements of claims 7 to 10. Thus while the working examples do not specifically show the silsesquioxane claimed, it is clear that '193 anticipates the R groups claimed.

The subject matter in claims 26 to 28 is comparable to that of instant claim 14.

9. Claims 11 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over '193.

This rejection relies on the same rationale noted in paragraph 7, supra, regarding claims 11 and 29. As such this will not be repeated.

10. Claims 1 to 6 and 20 to 25 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over '193.

'193 fails to specifically teach the starting material (1). Scheme 2, which shows

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the preparation of a silsesquioxane meeting formula (2), uses a starting material having three OH groups. Notice that MOH, wherein M corresponds to M in the instant claims, is used in this reaction process. Paragraph 22 teaches that bases are added during the reaction to help cleave the O-H bonds found in the silsesquioxane. Thus, when MOH cleaves the O-H bond in the starting material in Scheme 2, it will result in a compound of formula (1) which is then used to form the final compound (2). While not specifically shown, the method of claim 1 inherently occurs in the process of '193 and as such this claimed process is inherently met by the prior art. The Examiner relies on the rationale noted supra in paragraph 6 with regards to the selection of R groups in claims 1 to 4. Note that sodium is one of the specific M atoms taught in '193, thereby meeting this requirement in claims 5, 6 and 20 to 25.

11. Claims 7 to 10, 14 and 26 to 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lichtenhan et al. '562.

'562 teaches silsesquioxanes having the Formula 2 on the top of column 4. Note that the OA groups can be OH, rendering obvious the selection of 2 hydrogen Y groups in the instant Formula 2. The  $\text{SiR}^4\text{R}^5\text{R}^6$  in the '562 Formula 2 corresponds to the claimed Y group of Formula (3). Note that the  $\text{R}^4$ ,  $\text{R}^5$  and  $\text{R}^6$  group can be alkenyl or alkoxy. When such a group is selected, this corresponds to the claimed Z group in claims 7 and 14 for Formula (3). Thus the Formula 1 in '562 embraces that instantly claimed and one having ordinary skill in the art would have found the selection of OH as the OA group, and the selection of an alkenyl or alkoxy  $\text{R}^4$ ,  $\text{R}^5$  or  $\text{R}^6$  to have been obvious and within routine experimentation of the teaching in '562. Note the definitions of R found on the top of column 4 which specifically names various groups meeting the requirements of claims 7 to 10. In this manner these claims are rendered obvious by the prior art.

The subject matter of claims 26 to 28 corresponds to claim 14.

12. Claims 15 to 19 are allowed. The prior art fails to teach or suggest such specific silsesquioxanes. Claims 12, 13, 30 and 31 are objected to as being dependent on a rejected base claim but containing allowable subject matter. The prior art fails to teach

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these particular requirements, specifically the R groups as claimed. The general teaching of halide substituted aliphatic groups in the prior art simply is not sufficient to render obvious the selection of the particular fluorinated groups required by these claims.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Margaret G. Moore whose telephone number is 571-272-1090. The examiner can normally be reached on Monday to Wednesday and Friday, 10am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MARGARET G. MOORE  
PRIMARY EXAMINER

mm  
1/24/05